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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/734,136

12/15/2003

In-Taek Han

030681-605

9231

21839 7590 03/16/2007
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ALEXANDRIA, VA 22313-1404

EXAMINER

HINES, ANNE M

ART UNIT

PAPER NUMBER

2879

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
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3 MONTHS

03/16/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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|------------------------------|-------------------------------|------------------------------|--|
| Office Action Summary | Application No. 10/734,136 | Applicant(s) HAN, IN-TAEK | |
| | Examiner Anne M. Hines | Art Unit 2879 | |

- The MAILING DATE of this communication appears on the cover sheet with the correspondence address -
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13, 16, 18, 20 and 21 is/are rejected.
- 7) ☒ Claim(s) 14, 15, 17-19, 22 and 23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 November 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

The amendment filed on November 30, 2005, has been entered and acknowledged by the Examiner.

Claims 13-23 are pending in the instant application.

Claim Objections

Claim 18 is objected to because of the following informalities: the phrase "an electric field emission enhancing layer located on the back electrode and is in contact the dielectric layer on the first substrate" is unclear. It appears that the phrase should read: "an electric field emission enhancing layer located on the back electrode and is in contact [with] the dielectric layer on the first substrate" The Examiner has treated the claim on its merits assuming this correction. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 13, 16, 18, and 20-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Antson et al. (US 4,416,933) (of record).

Regarding claim 13, Antson discloses a substrate (Fig. 1, 1; Column 3, lines 24-25); a transparent electrode located on one surface of the substrate (Fig. 1, 2; Column 4, lines 25-26); an inorganic light-emitting layer located on a side of the electrode opposite to the substrate (Fig. 1, 6; Column 4, lines 58-59); a dielectric layer located on a side of the inorganic light-emitting layer opposite to the electrode (Fig. 1, 8; Column 8, lines 31-32); an electric field emission enhancing layer located on a side of the dielectric layer opposite to the inorganic light emitting layer (Fig. 1, 9; Column 3, lines 32-33); and a back electrode located on a side of electric field emission enhancing layer opposite to the dielectric layer (Fig. 1, 10; Column 3, line 33). Note that the phrase "electric field emission enhancing layer" has been interpreted with the broadest reasonable interpretation. Merriam-Webster Online Dictionary defines enhance as: to increase or improve in value, quality, desirability, or attractiveness. Since the conductive protective layer of Antson provides a chemical protection layer without voltage losses (Column 2, lines 27-35) and keeps lateral conductivity at a low level (Column 4, lines 25-33) it is considered to inherently be an electric field emission enhancing layer.

Regarding claim 16, Antson discloses a first electrode (Fig. 1, 2; Column 4, lines 25-26); a first dielectric layer adjacent to the first electrode (Fig. 1, 4; Column 3, line 28); an inorganic light-emitting layer adjacent to the first dielectric layer (Fig. 1, 6; Column 4, lines 58-59); a second dielectric layer adjacent the inorganic light-emitting layer (Fig. 1, 8; Column 8, lines 31-32); a second electrode adjacent the second dielectric layer (Fig. 1, 10; Column 3, line 33), wherein the first electrode, first dielectric layer, the inorganic light-emitting layer, the second dielectric layer and the second electrode form a layered

structure (Fig. 1); and a substrate adjacent the layered structure (Fig. 1, 1; Column 3, lines 24-25), wherein the layered structure includes an electric field emission enhancing layer located at at least one location selected from the list of a location between the first electrode and the first dielectric layer (Fig. 1, 3; Column 3, lines 26-27), and a location between the second electrode and the second dielectric layer (Fig. 1, 9; Column 3, lines 32-33). See claim 13 rejection for interpretation of "electric field emission enhancing layer."

Regarding claim 18, Antson discloses first and second substrates which are arranged opposite to each other (Fig. 1, 1 & 1'; Column 3, lines 24-25; Column 3, line 34); a transparent electrode located on the first substrate (Fig. 1, 2; Column 4, lines 25-26); an inorganic light-emitting layer located on the transparent layer (Fig. 1, 6; Column 4, lines 58-59); a dielectric layer located on the light-emitting layer (Fig. 1, 8; Column 8, lines 31-32); a back electrode located on the second substrate (Fig. 1, 10; Column 3, line 33); and an electric field emission enhancing layer located on the back electrode and is in contact with the dielectric layer on the first substrate (Fig. 1, 9; Column 3, lines 32-33). See claim 13 rejection for interpretation of "electric field emission enhancing layer."

Regarding claim 20, Antson discloses first and second substrates which are arranged opposite to each other (Fig. 1, 1 & 1'; Column 3, lines 24-25; Column 3, line 34); a transparent electrode located adjacent the first substrate (Fig. 1, 2; Column 4, lines 25-26); a first electric field emission enhancing layer located adjacent the transparent electrode (Fig. 1, 3; Column 3, lines 26-27); a first dielectric layer located

adjacent the transparent electrode (Fig. 1, 4; Column 3, line 28); an inorganic light-emitting layer located adjacent to the first dielectric layer (Fig. 1, 6; Column 4, lines 58-59); a second electric field emission enhancing layer located adjacent the inorganic light-emitting layer (Fig. 1, 9; Column 3, lines 32-33); a back electrode located adjacent the second electric field emission enhancing layer (Fig. 1, 10; Column 3, line 33); and a second dielectric layer located adjacent the back electrode (Fig. 1, 8; Column 8, lines 31-32). See claim 13 rejection for interpretation of "electric field emission enhancing layer."

Regarding claim 21, Antson further discloses wherein the transparent electrode (Fig. 1, 2; Column 4, lines 25-26), the first electric field emission enhancing layer (Fig. 1, 3; Column 3, lines 26-27), the first dielectric layer (Fig. 1, 4; Column 3, line 28), the inorganic light-emitting layer (Fig. 1, 6; Column 4, lines 58-59), and the second dielectric layer (Fig. 1, 8; Column 8, lines 31-32) are formed on the first substrate (Fig. 1, 1; Column 3, lines 24-25), and the back electrode (Fig. 1, 10; Column 3, line 33) and the second electric field emission enhancing layer (Fig. 1, 9; Column 3, lines 32-33) are formed on the second substrate (Fig. 1, 1'; Column 3, line 34).

Allowable Subject Matter

Claims 14-15, 17, 19, and 22-23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments with respect to claims 1, 3, 5, 6, 9, and 10 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anne M. Hines whose telephone number is (571) 272-2285. The examiner can normally be reached on Monday through Friday from 8:00-4:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anne M Hines
Patent Examiner
Art Unit 2879

AmH
1/24/06

msl 1/26/06.
MARICELI SANTIAGO
PRIMARY EXAMINER